REMARKS

Claims 1-17 are in the case.

Claim 7 was amended to remove "means" language.

Claim 9 was amended to recite a system and clarify that packets may be selectively routed through the first and second foreign agents from the home agent to the subscriber unit. Also, claim 9 was amended to recite that the home agent is configured to forward packets destined for the subscriber unit to foreign agents that are bound with the home agent to receive the packets.

Claims 11-17 were added to claim various aspects of the invention. Support for these claims may be found in the Application as originally filed on page 7 line 9 through page 8 line 13.

Claim Objections

In the Office Action, the Examiner has objected to claim 8 but has noted that this would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 8 has been rewritten as such. The Applicants respectfully believe that claim 8 is now in condition for allowance and respectfully request that the objection to claim 8 be withdrawn.

§ 102 Rejections

In the Office Action, claims 1-7 and 9-10 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. to Averbuch, et al (hereinafter "Averbuch"). Claim 8 was objected to as being dependent on a rejected base claim but would be allowable if rewritten in independent form.

Brief Description of the Present Invention

The present invention relates to a technique for improving the efficiency of a handoff in a wireless communication network. According to the technique, in response to a handoff request, a first and second base station in the wireless communication network are designated for

simultaneous receipt of data packets destined for a subscriber unit. The data packets are stored at the second base station after the handoff request but before the handoff is executed. After the handoff is executed, the second base station forwards the stored data packets to the subscriber unit.

Brief Description of the Cited Art

Averbuch discloses a technique for conveying a data packet to a communication unit, in a packet based wireless system, before and after a handoff. According to the Averbuch, prior to detecting a handoff, a copy of the data packet is sent to a base site, currently serving the communication unit, and to one or more potential handoff target base sites that may be serving the communication unit after the handoff. The copies of the packet are sent to each potential handoff target base site at substantially the same time as the packet is provided to the base site currently serving the communication unit. While the current base site is serving the communication unit, a portion of the packet is transmitted to the communication unit from the current base site. The communication unit detects the handoff condition and informs a target base site that it has received the portion of the packet by sending an acknowledgement message to the target base site. The target base site then transmits the remaining portions of the packet to the communication unit. See Averbuch, column 3, lines 14-42, column 4, lines 17-37, column 6, lines 35-48, column 7, line 36 to column 8, line 13 and FIG. 4.

Differences Between the Cited Art and the Present Invention for Claims 1-3

Representative claim 1 recites:

> 1. For use in a data communication network including a wireless link for the transfer of data packets from a first machine to a second machine, the wireless link having a multitude of base stations which may be selectively designated to receive data packets from the first machine and a subscriber unit connected to the second machine for receiving data packets from a selectable one of the base stations, a method of maintaining data throughput during a handoff from a first one of the base stations to a second one of the base stations as requested by the subscriber unit, which comprises the steps of:
>
> uniquely ***designating only the first and second base stations for simultaneous receipt of the data packets*** from the first machine ***in response to the handoff request***;

storing the data packets received by the second base station after such handoff request but before handoff is executed; and

forwarding a selected subset of the stored data packets to the subscriber unit after handoff is executed.

The Applicants respectfully submit that Averbuch does not expressly or inherently describe "***designating only the first and second base stations for simultaneous receipt of the data packets... in response to the handoff request***" as claimed by the Applicants.

The system described by Averbuch "multicasts" a packet to each potential target base site that may be involved in the handoff. As noted in the background section of the Applicants' application, this technique is inefficient because it causes resources associated with base stations, not actually involved in the handoff, to be tied up with having to store and process the packets for the subscriber unit. Because these base stations are pressed into service, the resources for these base stations are unavailable for productive use elsewhere. In addition, pressing these base stations into service places an unnecessary load on the network infrastructure. See Background of the Invention, page 2, lines 2-20.

In sharp contrast, the Applicants' claimed invention does not require that every possible target base station dedicate resources to storing and processing packets in anticipation of a handoff. Rather, the Applicants' claimed invention waits for a handoff request from a subscriber base station before designating which base stations should dedicate resources to storing and processing packets destined for the subscriber unit. Specifically, the handoff request designates which base station has been selected by the subscriber unit to service the unit after the handoff. The Applicants' invention uses this information in the handoff request to limit the number of base stations that are involved in storing and processing the packets to those base stations involved in the handoff, that is, (1) the base station currently serving the subscriber unit and (2) the base station that will be involved in servicing the subscriber unit after the handoff. Thus, by waiting for the handoff request before dedicating resources to store and process the subscriber unit's

packets, network resources are greatly conserved and the wasteful "shotgun" approach taught by Averbuch can be avoided.

Because of the absence of "***designating only the first and second base stations for simultaneous receipt of the data packets... in response to the handoff request***" in Averbuch, the Applicants respectfully submit that Averbuch does not anticipate the Applicants' claims 1-3 under 35 U.S.C. § 102. Therefore, the Applicants respectfully believe claims 1-3 are allowable and respectfully request that the above rejections to these claims be withdrawn.

Differences Between the Cited Art and the Present Invention for Claims 4-17

Representative claim 4 recites:

> 4. For use in a wireless communication link adapted to operate in accordance with the Mobile IP protocol and comprising, in combination, a subscriber unit constituting a Mobile IP mobile node, a Mobile IP home agent associated with the mobile node's home network, and first and second base stations respectively associated with first and second Mobile IP foreign agents through which data packets may be selectively routed from the home agent, the first foreign agent being initially registered with the home agent as a first mobility binding between the subscriber unit and the home agent, the subscriber unit receiving such data packets from a selected one of the first and second base stations, method for maintaining data throughput during a handoff of the subscriber unit from the first base station to the second base station as requested by the subscriber unit, which comprises the steps of:
>
> ***registering the second foreign agent*** as a second mobility binding between the subscriber unit and the home agent in response to the handoff request, the second mobility binding constituting a simultaneous binding with the first mobility binding ***to allow receipt of the data packets from the home agent*** by both the first and second foreign agents;
>
> storing a sequence of data packets received by the second foreign agent from the home agent after such simultaneous binding registration but before handoff is executed; and
>
> forwarding the stored data packets to the subscriber unit via the second base station starting with a predetermined data packet in the stored sequence after handoff is executed.

The Applicants respectfully submit that Averbuch does not expressly or inherently describe "***registering the second foreign agent as a second mobility binding between the***

subscriber unit and the home agent... to allow receipt of the data packets from the home agent" as claimed by the Applicants.

Nowhere does Averbuch expressly or inherently describe registering a foreign agent to receive packets destined for a subscriber unit. In fact, according to Averbuch, registration does not make sense because, as noted above, all potential base stations that could serve a subscriber unit after a handoff receive packets destined for the subscriber unit regardless of whether they will ultimately serve the subscriber unit after the handoff.

On the other hand, the Applicants' claimed invention requires that a foreign agent associated with a base station register with the home agent in order to receive copies of packets destined for a subscriber unit. By imposing this requirement, the home agent can limit the distribution of copies of packets to only those foreign agents that are registered to receive the packets. Thus, other foreign agents need not commit resources to serve the subscriber unit. By requiring registration, the Applicants' claimed invention utilizes network resources more efficiently than the approach disclosed by Averbuch.

Because of the absence of "***registering the second foreign agent as a second mobility binding between the subscriber unit and the home agent... to allow receipt of the data packets from the home agent***" in Averbuch, the Applicants respectfully submit that Averbuch does not anticipate the Applicants' claims 4-17 under 35 U.S.C. § 102. Therefore, the Applicants respectfully believe claims 4-17 are allowable and respectfully request that the above rejections to these claims be withdrawn.

CONCLUSION

In view of the above amendments and remarks, it is believed that all claims are in condition for allowance, and it is respectfully requested that the application be passed to issue. If the Examiner feels that a telephone conference would expedite prosecution of this case, the Examiner is invited to call the undersigned.

Respectfully submitted,

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